Appendix 16
Course-Specific Appendix for the Single-Subject Master in Renewable Energy (EUREC)

Valid as from winter semester 2016/17; resolution of the faculty meeting of 14.09.2016

Supplement to § 1 Scope of Application
The second semester is subject to the examination regulations of the respective partner university (see § 2).

Supplement to § 2 Study Objectives
The Master programme "European Master in Renewable Energy" (EUREC) is more application-oriented. The degree course aims to train professionals who are able to familiarize themselves with the various areas and issues of renewable energy and to develop these to specialists. Some of the future areas of activity include research, planning and development, participation in regional and international development organisations and processing of interdisciplinary topics on the sustainability of future energy supply systems.

After completing the programme, the students will have a critical understanding of the role of Renewable Energy technologies in a climate and resource constrained energy sector and gain the technical knowledge on different renewable energy technologies. This covers the evaluation of the resource, principles of the conversion process, choice of materials, design of systems, performance of systems in operation as well as the use of models and tools for simulation and sizing. Students acquire a critical understanding of the principles of the socio-economic evaluation of Renewable Energy technologies and of the role of regulatory policy frameworks in the context of Renewable Energy. They have skills in analytical and research methodology, including a reflective and critical approach, relevant for Renewable Energy. After the specialization semester, they have a critical understanding and in-depth expertise in one of the following technologies:

- Photovoltaics (University of Northumbria, Newcastle, United Kingdom)
- Wind Energy (National Technical University, Athens, Greece)
- Grid Integration (University of Zaragoza, Spain)
- Solar Thermal (University of Perpignan, France)
- Ocean Energy (IST Lisbon, Portugal)
- Sustainable Fuel Systems for Mobility (Hanze University of Applied Sciences, Groningen, Netherlands)

During the programme, students acquire the capacity to apply scientific knowledge to a professional situation, as a reflective practitioner, the capacity to work in a multicultural and multidisciplinary team as well as the capacity to communicate information in a clear and structured way in both oral and written format.

Supplement to § 5 Duration, Scope and Structure of the Studies, Part-time Studies
To (1): The regular time needed to complete the course is three semesters. The total credit point score is 90 CP.

To (2): The degree course may not be completed as a part-time course.

Supplement to § 8 Acknowledgement of Examinations

To (4): An acknowledgment of examinations, in accordance with paragraphs 1 and 2, may only take place for the first semester at the University of Oldenburg and then only to the extent of a maximum of 15 credit points.

Supplement to § 10 Structure and Content of the Modules

To (1): The following modules are compulsory in the Master programme:

Module Title	CP	Module Form	Examinations
1st Semester, University of Oldenburg			
pre311 Renewable Energy Basics	6	Labore, VL, SE	1 examination: Written examination or practical examination
pre312 Wind Energy	5	Labore, VL, Ü, Exkursion	1 examination: Written examination or assignment or oral examination
pre313 Solar Energy	5	Labore, VL, Ü	1 examination: Written examination or assignment or oral examination
pre316 Biomass Energy & Hydro Energy	3	Labore, VL, Ü, Exkursion	1 examination: Written examination or assignment or oral examination
pre314 Energy Meteorology & Storage Technologies	7	Labore, VL, Ü	1 examination: Written examination or assignment or oral examination
pre315 Energy Systems & Society	4	VL, SE, Exkursion	2 examinations: Paper presentation and written examination
2nd Semester, University of the Specialisation			
Specialisation*	Total 30	VL, Ü, Sim, SE, project, Exkursion	At least 2 examinations (see following table)
Master	30	Master thesis project	2 examinations: Master dissertation (80 %), dissertation defence (20 %)

Abbreviations: VL = lecture, Ü = tutorial, Sim = simulation, SE = seminar,
Labore = laboratory practicals, Exkursion = excursion

* The modules from the specialisation universities are to found in the following tables.
After selecting a specialisation all modules within the specialisation are compulsory.

NTU Athen Wind Energy		
Module Title	**CP**	**Examinations**
pre325 Wind Potential, Aerodynamics & Loading of Wind Turbines	7.5	1 examination
pre326 Wind Turbine Design, Electrical & Control Issues, Certification	7.5	1 examination
pre327 Wind Farm Technology, Economics & Environmental Issues	7.5	1 examination
pre328 Mini Project	7.5	1 examination

Instituto Superior Técnico Lissabon Ocean Energy		
Module Title	**CP**	**Examinations**
pre331 Ocean Energy Resources	6	1 examination
pre332 Modelling and Control of Ocean Energy Systems	6	1 examination
pre333 Ocean Energy Systems Technologies	7.5	1 examination
pre334 Economics, Policy and Environment	4.5	1 examination
pre335 Project	6	1 examination

University of Northumbria – Newcastle Photovoltaics		
Module Title	**CP**	**Examinations**
pre351 Photovoltaic Cell and Module Technology	10	1 examination
pre352 Advanced Photovoltaic Cell Design	5	1 examination
pre353 Photovoltaics: Economics, Policy and Environment	5	1 examination
pre354 Photovoltaic System Technology	10	1 examination

University Perpignan – Perpignan Solar Thermal Energy		
Module Title	**CP**	**Examinations**
pre365 Fundamentals	7	1 examination
pre366 Solar Low Temperature	7	1 examination
pre367 Solar High Temperature	12	1 examination
pre364 Thermal Energy Storage	4	1 examination

University Zaragoza - Zaragoza Grid Integration		
Module Title	**CP**	**Examinations**
pre371 Distributed Generation	2	1 examination
pre372 Generation and Storing Technologies	4.5	1 examination
pre373 Control Techniques and Renewable Energy Integration Systems	5.5	1 examination
pre374 Power Grid Analysis and Studies	6	1 examination
pre375 Smart Grids	4.5	1 examination
pre376 Standards and Electric Markets	2.5	1 examination
pre377 Project	5	1 examination

Hanze UAS – Groningen Sustainable Fuel Systems		
Module Title	**CP**	**Examinations**
pre381 Processes, models & modelling	10	1 examination
pre382 Biochemical conversion	10	1 examination
pre383 Thermochemical conversion	5	1 examination
pre384 New Business	5	1 examination

Supplement to § 13 Assessment of Module Examinations and the Master's Dissertation
The scores from the specialisation universities are transformed into a common grade (§ 13, paragraph (2)) using a Table of Equivalence (see below)

Table of Equivalence for EUREC Master marks [%], German marks in brackets

Marking Categories	U Oldenburg *Core Semester*	NTU Athens *Wind Energy*	IST Lisbon *Ocean Energy*	U Northumbria *Photovoltaics*	U Perpignan *Solar Thermal*	U Zaragoza *Grid Integration*	Hanze Groningen *Sustainable Fuels*
Fail	0 - < 45	0-49	0-40	0-49	0-19	0-19	0-54
	45 - < 50		40-49		20-49	20-49	
Satisfactory	50 - < 54,5 (4,0)	50- 69	50-60	50-59	50-69	50-69	55-64
	54,5 - < 59 (3,7)						
	59 - < 65 (3,3)		60-69				65-74
	65 - < 69,5 (3,0)						
Good	69,5 - < 74 (2,7)	70-79	70-75	60-69	70-79	70-89	75-84
	74 - < 80 (2,3)						
Very Good	80 - < 84,5 (2,0)	80- 89	75-79	70-79			
	84,5 - < 89 (1,7)						
Outstanding	89 - < 95 (1,3)	90-100	80-100	80-100	80-100	90-100	85-100
	95 - 100 (1,0)						

Supplement to § 15 Repetition of Module Examinations, Free-Trial Examinations
To (1): The repeat examination may be undertaken in a different form, in consultation with the module coordinator.

To (5): Free attempts for grade improvement are not possible.

Supplement to § 20 Registration for Master's Dissertation
To (1): To register for the Master dissertation it is necessary to have examination results worth 30 credit points.

Supplement to § 21 Master Dissertation

To (2): With the approval of the examination committee, the topic can also be set by another authorized examiner according to § 7, paragraph 1; in this case the second examiner must be a member of the academic teaching staff of the Faculty of Mathematics and Science at the Carl von Ossietzky University of Oldenburg or from the concerned EUREC specialization university, which is involved in the teaching in the respective Master's degree course.

To (4): The Master dissertation must be completed in English.

To (5): The 30 CP for the Master's dissertation module shall be divided as follows: 24 CP for the dissertation and 6 CP for the dissertation defence.

To (10): The dissertation defence usually comprises a 15 minute presentation and a 10 minute oral defence.

Supplement to § 23 Overall Result

To (1): The „European Master in Renewable Energy“ (EUREC) degree course is successfully completed when 90 CP have been gained, as in accordance with this course-specific appendix of the examination regulations, and when all module examinations including the final module have been passed.

To (3): For determining the overall grade all module grades are considered. The „European Master in Renewable Energy“ (EUREC) degree course does not include any elective subjects.